UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/032,622	10/25/2001	Nurettin Burcak Beser	0023-0142 (JNP-0198)	6016

44987 7590 12/18/2007
HARRITY SNYDER, LLP
11350 Random Hills Road
SUITE 600
FAIRFAX, VA 22030

EXAMINER	
CHO, HONG SOL	

ART UNIT	PAPER NUMBER
2619	

MAIL DATE	DELIVERY MODE
12/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/032,622	BESER, NURETTIN BURCAK	
	Examiner	Art Unit	
	Hong Cho	2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/31/2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11,39,41-46 and 48-57* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11,39,41-46 and 48-57* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This office action is in response to the amendment filed on 10/31/2007. Claims 11, 39, 41-46 and 48-57 are pending in the instant application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vogel (US 6785292) in view of Kokkinen (US 7086082) and further in view of Ruszczyk et al (US 6940874), hereinafter referred to as Ruszczyk.

Re claim 11, Vogel discloses receiving transmission requests from cable modems (*receiving bandwidth allocation requests from cable modems*, column 7, lines 28-32),

scheduling transmission on mini-slots of an upstream channel (*scheduling transmission on a physical upstream channel from cable modems associated with each of the bandwidth allocation requests based on a respective mini-slot size,* column 7, lines 31-36), and dividing an upstream channel into a stream of mini-slots associated with symbol rate and modulation type (*segregating the physical upstream channel into multiple virtual upstream channels, wherein each of the multiple virtual upstream channels is associated with a different modulation and symbol rate,* column 7, lines 24-26; column 9, lines 23-26). Vogel discloses allocating mini-slots to each of the cable modems according to symbol rate and modulation type (column 7, lines 31-33; column 9, lines 20-26), but fails to disclose determining mini-slot size based on symbol rate and modulation type. Kokkinen discloses determining mini-slot size (column 5, lines 35-40). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Vogel by adding to it the feature of determining mini-slot size as taught by Kokkinen so that the likelihood of collision on the upstream control channel would be decreased. Vogel and Kokkinen fail to disclose grouping the cable modems into a plurality of groups and allocating one or more transmission mini-slots to each of the cable modems. Ruszczyk discloses grouping the cable modems into a plurality of groups (column 1, lines 26-29) and allocating one or more transmission mini-slots to each of the cable modems (*assigning one of the multiple virtual upstream channels to each of the plurality of groups,* column 7, lines 32-33). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Vogel and Kokkinen to implement the feature of grouping the cable modems into a plurality of

groups and allocating one or more transmission mini-slots to each of the cable modems for the benefit of compensating propagation delay effects on a group of cable modems by

Claims 39, 42-44, 46, 49-51 and 53-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruszczyk in view of Cooper et al (US 6757253), hereinafter referred to as Cooper.

utilizing different modulation and symbol rate.

Re claims 39 and 46, Ruszczyk discloses grouping the cable modems into a plurality of groups by a distance from the CMTS (column 1, lines 26-29) and allocating one or more transmission mini-slots to each of the cable modems (*assigning one of the multiple virtual upstream channels to each of the plurality of groups*, column 7, lines 32-33), but fails to disclose grouping cable modems based on a latency associated with each of the plurality of groups. Cooper discloses identifying the cable modem with the group delay (column 9, lines 18-32). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Ruszczyk to implement the feature of grouping the cable modems into a plurality of groups based on a latency for the benefit of compensating propagation delay effects on a group of cable modems by utilizing different modulation and symbol rate. Ruszczyk discloses dividing an upstream channel into a stream of mini-slots associated with symbol rate and modulation type (*each of the multiple virtual upstream channels is associated with a different modulation and symbol rate,* column 7, lines 24-26; column 9, lines 23-26).

Re claims 42, 49 and 55, Ruszczyk discloses transmitting data on mini-slots of an upstream channel (*sending a message on each of the different virtual upstream channels that allocates upstream bandwidth*, column 7, lines 29-32).

Re claims 43 and 50, Ruszczyk discloses cable modems transmitting data on allocated mini-slots by cable modem termination system (CMTS) (*each message pertains to cable modems of a group of the plurality of groups assigned to a respective virtual upstream channel*, column 8, lines 5-9).

Re claims 44 and 51, Ruszczyk discloses transmitting a message with mini-slot size field (*each virtual upstream channel is associated with a different mini-slot size*, column 10, lines 30-34).

Re claim 53, Ruszczyk discloses grouping the cable modems into a plurality of groups (column 1, lines 26-29) and allocating one or more transmission mini-slots to each of the cable modems (*assigning one of the multiple virtual upstream channels to each of the plurality of groups*, column 7, lines 32-33), but fails to disclose grouping cable modems and allocating bandwidth request opportunities based on a latency associated with each of the plurality of groups. Cooper discloses identifying the cable modem with the group delay (column 9, lines 18-32). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Ruszczyk to implement the feature of grouping the cable modems and allocating bandwidth request opportunities based on a latency for the benefit of compensating propagation delay effects on a group of cable modems by utilizing different modulation and symbol rate.

Re claim 54, Ruszczyk discloses allocating one or more transmission mini-slots to each of the cable modems (*assigning one of the multiple virtual upstream channels to each of the plurality of groups*, column 7, lines 32-33), where an upstream channel is divided into a stream of mini-slots associated with symbol rate and modulation type (*each of the multiple virtual upstream channels is associated with a different modulation and symbol rate,* column 7, lines 24-26; column 9, lines 23-26).

Claims 41, 48 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruszczyk in view of Cooper and further in view of Fottak (US 20060013124).

Re claims 41, 48 and 57, Ruszczyk discloses informing cable modems of the allocation of mini-slots for a scheduled upstream usage interval and when to begin the usage interval (column 8, lines 49-56), but fails to disclose differentiating slower cable modems from faster cable modems and assigning bandwidth to the cable modems based on the differentiation such that the slower cable modems are allowed to transmit data more frequently than faster cable modems. Fottak discloses identifying modems operating at different speed (paragraph [0010], lines 14-16). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Ruszczyk and Cooper by adding to it the feature of differentiating cable modems by speed and assigning more frequently unused bandwidth of a given upstream channel to a modem operating at slower data rate such that the bandwidth would not be wasted (paragraph [0034], lines 15-20).

Claims 45, 52 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruszczyk in view of Cooper and further in view of Kokkinen.

Re claims 45, 52 and 56, Ruszczyk discloses receiving transmission requests from cable modems (*receiving bandwidth allocation requests from cable modems*, column 7, lines 28-32), and scheduling transmission on mini-slots of an upstream channel (*scheduling transmission on a physical channel from cable modems associated with each of the bandwidth allocation requests based on a respective mini-slot size,* column 7, lines 31-36). Ruszczyk discloses allocating mini-slots to each of the cable modems according to symbol rate and modulation type (column 7, lines 31-33; column 9, lines 44-51), but fails to disclose determining mini-slot size based on symbol rate and modulation type. Kokkinen discloses determining mini-slot size (column 5, lines 35-40). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Ruszczyk by adding to it the feature of determining mini-slot size as taught by Kokkinen so that the likelihood of collision on the upstream control channel would be decreased.

Response to Arguments

4. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hong Cho whose telephone number is 571-272-3087. The examiner can normally be reached on Mon-Fri during 7 am to 4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on 571-272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

hc
Hong Cho
Patent Examiner
12/10/2007